

REMARKS

This application has been reviewed in light of the final Office Action dated November 26, 2002. In view of the foregoing amendments and the following remarks, favorable reconsideration and withdrawal of the rejections set forth in the Office Action are respectfully requested.

Claims 1-18 are presented for examination. Claims 1, 3, 4, 6-10 and 12-18 have been amended. Claims 1, 8 and 14-16 are in independent form.

Claims 1-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,905,515 (*Yoshimura*) in view of U.S. Patent No. 6,074,040 (*Usui et al.*). In response to this rejection, Applicants respectfully submit the following remarks.

One feature of independent Claim 1 is that, in a liquid discharging head, a face surface, serving as an outer surface of a member including orifices, is coated with a water repellent material having a superhydrophobic property. Each of independent Claims 8 and 14-16 recites a similar feature.

According to Applicants' understanding, *Yoshimura* relates to a water-repellent film for a nozzle plate of an ink ejecting device. The water-repellent film includes a fluorocarbon resin and a surface active agent. Applicants note that a surface active agent reduces the interfacial tension between a liquid and a solid, so that a surface of a solid treated with a surface active agent allows a liquid to wet the surface of the solid more. That is, a surface active agent applied to a solid renders the solid less hydrophobic. Thus, the presence of a surface active agent in *Yoshimura's* water repellent film decreases the hydrophobic quality thereof, as compared with the case involving a water-repellent film without a surface active agent.

Therefore, Applicants understand that *Yoshimura*'s water-repellent film may have a hydrophobic, but not a superhydrophobic, property. Accordingly, Applicants submit that nothing in *Yoshimura* would teach or suggest at least that, in a liquid discharging head, a face surface, serving as an outer surface of a member including orifices, is coated with a water repellent material having a superhydrophobic property.

According to Applicants' understanding, *Usui et al.* relates to an ink-jet printer head, its manufacturing method, and ink. According to *Usui et al.*, a metal layer and a sulfur compound layer are formed on the surface of a nozzle. Gold atoms of the metal layer and sulfur atoms of the sulfur compound layer are bonded covalently and form a water repellent thin film. However, Applicants submit that, even if *Usui et al.* teaches a water-repellent film, this reference does not teach or suggest a water-repellent material having a superhydrophobic property. Accordingly, Applicants submit that nothing in *Usui et al.* would teach or suggest at least that, in a liquid discharging head, a face surface, serving as an outer surface of a member including orifices, is coated with a water repellent material having a superhydrophobic property.

Further, Applicants submit that *Yoshimura* and *Usui et al.* cannot properly be combined. *Usui et al.*'s structure is such that a metal layer as a foundation is required to maintain the adhesiveness of the water-repellent film. However, *Yoshimura* teaches that if a metallic filler is mixed into the nozzle substrate resin or the water-repellent film, or a metallic thin film is formed on the water-repellent film, it becomes impossible or very difficult to form the nozzles using an excimer laser beam. Again, if the metallic thin film is formed on the nozzle surface, the thin film wears away from or peels off of the nozzle surface due to wiping operations, thus rendering the useful lifetime of the antistatic treatment too short. See

Yoshimura, col. 1, lines 21-58; see also Fig. 3 and the discussion thereof at col. 3, lines 6-50. In summary, *Usui et al.* requires a metal layer on the nozzle surface to (in part) form the water-repellent film, while *Yoshimura* requires that no such metal layer be present on the nozzle surface or in or on the water-repellent film. Therefore, both *Yoshimura* and *Usui et al.* teach away from each other, and combining one with the other would render both unsatisfactory for their intended purposes. See M.P.E.P. 2143.01 and 2145 X.D.

In conclusion, neither *Yoshimura* nor *Usui et al.*, whether taken alone or in combination (even assuming, for the sake of argument, that such combination were permissible), contains all of the features of any of the independent claims of the subject application. Furthermore, *Yoshimura* and *Usui et al.* cannot properly be combined. For both of these reasons, the independent claims herein are believed patentable over the cited art.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

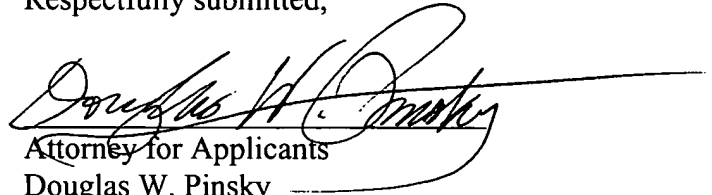
Applicants submit that this Amendment After Final Rejection clearly places the subject application in condition for allowance. This Amendment was not presented earlier,

because Applicants believed that the prior Response placed the subject application in condition for allowance. Accordingly, entry of the instant Amendment, as an earnest attempt to advance prosecution and reduce the number of issues, is requested under 37 C.F.R. § 1.116.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Douglas W. Pinsky", is written over a horizontal line.

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